3.6 Responses to Other Organizations and Individuals

Table 3.1. Organizational Comments and Responses

Source	Comment	Response
Citizens in Action Arnold, Nellie	PDA034/003	Foreign wastes (outside the U.S.) are not being imported to Hanford.
Citizens in Action Arnold, Nellie	PDA034/004	Foreign wastes (outside the U.S.) are not being imported to Hanford.
Columbia Riverkeeper deBruler, Gregory	L106/009	Specific discussion of the use of soil mounds over trenches as an interim measure to shed water has been included in this HSW EIS. Section 5.18.1 addresses potential groundwater mitigation measures, and DOE considers early capping as part of this discussion. The SAC analysis demonstrated that some advantages are associated with early capping.
Columbia Riverkeeper deBruler, Gregory	L106/010	LLW disposed prior to September 1987 may contain significant hazardous chemical inventories but no specific requirements existed to account for or to report of the content of hazardous chemical constituents in this category of LLW. As a consequence, analysis of these constituents and estimated impacts based on the limited amount of information on estimated inventories and waste disposal location would be subject to large uncertainty and would preclude a comprehensive analysis of these constituents at this time.
Columbia Riverkeeper deBruler, Gregory	L106/018	Decommissioning, surveillance, and maintenance activities that would occur after closure of the waste management facilities were not included within the scope of the first draft HSW EIS. Final resolution of the waste sites [which would include the surveillance, inspection, and maintenance activities] will become part of the overall Hanford environmental restoration closure program for the 200 Area.
Columbia Riverkeeper deBruler, Gregory	L106/019	Milestone M-15-00C of the TPA requires all 200 Area, non-tank farm, pre-record of decision site investigation activities to be completed by December 31 2008. Site characterization information generated from TPA remedial investigation and LLBG RCRA permitting activities has been used in development of the draft HSW EIS. It is not expected that the HSW EIS NEPA review process will need to be delayed pending completion of 200 Area site investigations under the TPA.

Table 3.1. (contd)

Source	Comment	Response
Columbia Riverkeeper deBruler, Gregory	L106/023	Additional information has been provided in the revised draft HSW EIS that will address this request. The updated analysis indicate similar general results to those outlined in the March 2002 Draft HSW-EIS. Although less waste is buried under the No Action Alternative relative to the amounts considered under all the Alternative Groups (A-E), the maximum impacts under the No Action Alternative are slightly larger due to two factors: - no barrier is considered thus source-term release is based on infiltration representative of surface conditions with natural vegetation that is generally higher than is estimated for barriercover conditions - the estimated inventories of key constituents that give rise to the maximum impacts on water quality and dose (Tc-99 in Cat 3 LLW and I-129 in MLLW) are is largely the same for all alternatives.
Columbia Riverkeeper deBruler, Gregory	L106/037	Use of soil debris model for contaminant is meant to be very conservative representation of actual constituent release in the source zone. In this model, the entire inventory is emplaced in the residual water content and is made immediately available for leaching. The rate of contaminant release out the bottom of the trench is controlled by the infiltration governed by surface soil conditions through the waste zone. This is far more conservative than conditions described by the commenter. The updated HSW EIS analysis does evaluate the potential impacts of these earlier disposals by evaluating the effect of higher infiltration rates during operations. Results of analyses of earlier disposal facilities using release and vadose zone infiltration rates of 5 cm/yr, a rate reflective of managed bare surface soil conditions over the older disposal areas during the operations phase, estimated arrival of mobile contaminants (such as technetium-99 and iodine-129) at immediate downgradient locations several hundred years before impacts of later disposals were realized. Peak concentrations of technetium-99 and iodine-129 were estimated to arrive at downgradient locations between years 2050 and 2100 from 200 East Area locations and year 2300 and 2350 from 200 West Area locations. These results are considered to be a bounding analysis of impacts in that: - It assumes the inventory in these early disposals would be immediately available for release and would be leached at

Table 3.1. (contd)

Source	Comment	Response
		rates reflective of this assumed high rate of infiltration. In reality, the actual leaching of wastes would be expected to be much lower. - The infiltration rate of 5 cm/yr assumed in the vadose zone transport is also likely to be much higher than would be expected. This high rate of infiltration applied in vicinity of waste trenches would be expected to decline to rates more reflective of natural recharge as it encounters soils in their natural dry state below the waste trenches and migrates downward and laterally in the vadose zone in the surrounding areas. Descriptions of the underlying assumptions and resulting estimated impacts (that is, contaminant concentration levels and peak arrival times) from these analyses are provided in detail in Appendix G. The updated analysis evaluates cap degradation. No guidance is available for specifying barrier performance after its design life. However, we do not expect an immediate decrease in performance is not expected, and it is likely that this specific barrier will perform as designed far beyond its design life. Without data to understand and predict long-term performance of the specific barrier, a conservative assumption is the performance of the barrier would degrade stepwise after reaching its design life, and until the recharge rate matches the natural recharge rate in the surrounding environment. This approach is based on the assumption that a degraded cover will eventually return back to its natural state and behave like the surrounding environment. The period of degradation was assumed to be the same as the design life. In the case of the modified RCRA, Subtitle C, cover, which has a design life of 500 years, the starting infiltration rate used in the release modeling begins at 0.01 cm/yr, after which the assumed rate increases stepwise in five equal steps over 500 years after the start of cover degradation (See Figure G.6). After 500 years of degradation, the infiltration rate used in the release modeling is assumed to be equivalent to the rate used to represent recharge for the natural surrounding environment (0.5 cm/yr). This rate was used during the remaining 9,000 years of this assessment.

Table 3.1. (contd)

Source	Comment	Response
Columbia Riverkeeper deBruler, Gregory	L106/038	The contaminant transport model is discussed in Chapter 5 and the Appendices. The assessments documented here are based on the assumptions used in these models. "Problems" with model assumptions are discussed throughout the EIS. These results meet all the requirements in the National Environmental Policy Act (NEPA) of 1969, as amended (42 USC 4321 et seq.), the DOE implementing procedures for NEPA (10 CFR 1021), and the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500-1508). This comment does not change the assessment documented in the HSW EIS.
Columbia Riverkeeper deBruler, Gregory	L106/039	Characterization information. These analysis would require a more thorough and detailed characterization of these wastes at some future date. This issue is currently under review and transport of hazardous chemical constituents may be included in the final HSW EIS if additional information on hazardous chemical inventories and their transport and impacts are found to be significant. Besides inventory, the key associated include estimates of infiltration, hydraulic properties, and constituent mobility properties, which in the case of this assessment is the distribution coefficient (kd). The current version of the site-wide model relies on a three-dimensional representation of the aquifer system that was calibrated to Hanford Sitewide groundwater monitoring data collected during Hanford operations from 1943 to the present. The calibration procedure and results for this model are described in Cole et al. (2001a). This recent work is part of a broader effort to develop and implement a stochastic uncertainty estimation methodology in future assessments and analyses using the sitewide groundwater model (Cole et al. 2001b). Resulting distribution of hydraulic conductivities from this recent calibration effort is provided in Figures G.11 and 12 in App G of Updated HSW-EIS. The assessment was the beneficiary of preceding analyses and field observations including the performance assessments for 200 West and 200 East post-1988 burial grounds (Wood et al. 1995, 1996), the remedial investigation and feasibility study of the ERDF (DOE 1994b), the disposal of ILAW originating from the single- and double-shell tanks (Mann et al. 1997) and (DOE/ORP 2001), and the Composite Analysis of the 200 Area Plateau (Kincaid et al. 1998). These and other analyses, (for example, environmental impact statements) included development of inventory data and application of screening or significance criteria to identify those radionuclides that could be expected to significantly contribute to either the dose or

Table 3.1. (contd)

Source	Comment	Response
		risk calculated in the respective analysis. Clearly, those radionuclides identified as potentially significant in these published analyses are also expected to be key radionuclides in this assessment. To establish the relative mobility of each contaminant, they were grouped based on their mobility in the vadose zone and underlying unconfined aquifer that were based the best available information on distribution coefficients collected at Hanford. Contaminant groupings were used, rather than the individual mobility of each contaminant, primarily because of the uncertainty involved in determining the mobility of individual constituents. The groups were selected based on relatively narrow ranges of mobility, and constituents were placed in the more mobile group uncertainty was present concerning which group they should be placed in. Except for those with estimated Kds of zero, the actual Kd used were more conservative that those estimated from Hanford specific information and data. Information of this Hanford Site data are provided in Appendix G. Some of the constituents, such as iodine and technetium, would move at the rate of water whether in the vadose zone or underlying groundwater. The movement of other constituents in water, such as americium and cesium, would be slowed or retarded by the process of sorption onto soil and rock. A parameter that is commonly used to represent a measure of this sorption is referred to as the distribution coefficient or Kd. This parameter is defined as the ratio of the quantity of the solute adsorbed per gram of solid to the amount of solute remaining in solution (Kaplan et al. 1996). Values of Kd for the constituents range from 0 mL/g (in which the (in which the contaminant movement in water is not retarded) to more than 40 mL/g (in which the contaminant moves much slower than water).
Columbia Riverkeeper deBruler, Gregory	L106/051	DOE's consideration of the Endangered Species Act Section 7 consultation process is in Section 5.5.4 and Appendix I of the DEIS. Appendix I includes a copy of the April 23, 2002 response to the DOE consultation letter from the Fish and Wildlife Service and documentation of the telephone response from the National Marine Fisheries Service.
Columbia Riverkeeper deBruler, Greg	RL005/005	Comment noted.

Table 3.1. (contd)

Source	Comment	Response
Government Accountability Project, Nuclear Weapons Oversight Gilbert, Clare	L104/006	Decisions regarding ER (cleanup) waste are made through the CERCLA process. At Hanford LLW and MLLW retrieved as a result of cleanup activities would go to ERDF. TRU waste retrieved as a result of cleanup activities would be processed and sent to WIPP.
Government Accountability Project, Nuclear Weapons Oversight Gilbert, Clare	L104/007	The WM PEIS was a comprehensive evaluation of DOE nationwide waste management, and DOE determined there was sufficient information to make decisions regarding the sites that were suitable for long-term waste management missions. The HSW EIS evaluates alternatives consistent with WM PEIS decisions at Hanford. A discussion of the WM PEIS and its relationship to the HSW EIS can be found in Section 1.5. Not withstanding the above, as encouraged by Ecology and others, the HSW EIS includes an evaluation that assumes only Hanford wastes are managed at Hanford in the future.
Government Accountability Project, Nuclear Weapons Oversight Gilbert, Clare	L104/031	The assumptions stated in the comment are not correct. The ERPGs, published by the American Industrial Hygiene Association, are widely accepted for emergency planning purposes. The definitions of the various ERPGs state they are "The maximum concentration in air below which it is believed nearly all individuals could be exposed for up to one hour without experiencing..." …the given effect. These guides are applicable to nearly all individuals, possibly excluding only that very small percentage of hypersensitive individuals. 1. The Emergency Response Planning Guideline (ERPG) values are intended to provide estimates of concentration ranges where one reasonably might anticipate observing adverse effects as described in the definitions for ERPG-1, ERPG-2, and ERPG-3 as a consequence of exposure to the specific substance. The ERPG-1 is the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hr without experiencing other than mild transient adverse health effects or perceiving a clearly defined, objectionable odor. The ERPG-2 is the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hr without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action.

Table 3.1. (contd)

Source	Comment	Response
		The ERPG-3 is the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hr without experiencing or developing life-threatening health effects. It is recognized by the committee that human responses do not occur at precise exposure levels but can extend over a wide range of concentrations. The values derived for ERPGs should not be expected to protect everyone but should be applicable to most individuals in the general population. In all populations there are hypersensitive individuals who will show adverse responses at exposure concentrations far below levels where most individuals normally would respond. Furthermore, since these values have been derived as planning and emergency response guidelines, not exposure guidelines, they do not contain the safety factors normally incorporated into exposure guidelines. Instead, they are estimates, by the committee, of the thresholds above which there would be unacceptable likelihood of observing the defined effects. The estimates are based on the available data that are summarized in the documentation. In some cases where the data are limited, the uncertainty of these estimates is large. Users of the ERPG values are encouraged strongly to review carefully the documentation before applying these values. In developing these ERPGs, human experience has been emphasized to the extent data are available. Since this type of information, however, is rarely available, and when available is only for low level exposures, animal exposure data most frequently forms the basis for these values. The most pertinent information is derived from acute inhalation toxicity studies that have included clinical observations and histopathology. The focus is on the highest levels not showing the effects described by the definitions of the ERPG levels. Next, data from repeat inhalation exposure studies with clinical observations and histopathology are considered. Following these in importance are the basic, typically acute studies where mortality is the major focus. When inhalation toxicity data are either unavailable or limited, data from studies involving other routes of exposure will be considered. More value is given to the more rigorously conducted studies, and data from short-term studies are considered to be more useful in estimating possible effects from a single 1-hr exposure. Finally, if mechanistic or dose-response data are available, these are applied, on a case by case basis, as appears appropriate. It is recognized that there is a range of times that one might

Table 3.1. (contd)

Source	Comment	Response
		consider for these guidelines; however, it was the committee's decision to focus its efforts on only one time period. This decision was based on the availability to toxicology information and a reasonable estimate for an exposure scenario. Users who may choose to extrapolate these values to other time periods are cautioned to review the documentation fully since such extrapolations tend to hold only over very limited time frames, it at all.
Government Accountability Project, Nuclear Weapons Oversight Gilbert, Clare	L104/032	The assumptions stated in the comment are not correct. The use of radiation dose rates (and quality factors) is widely accepted as a basis for estimating the potential risk of latent cancer fatalities from radiation exposure. In fact, first calculating the radiation dose is the only scientific way to make such risk estimates and is particularly appropriate to populations. Radiation dose is the energy absorbed by a material, such as tissue. The linear energy transfer (LET) of a given type and energy of radiation (LET is not radionuclide-specific) is accounted for in the radiation quality factor, which modifies (by increasing) the radiation dose, the product of these two being the radiation dose equivalent. Radiation dose equivalent is often calculated for individuals because regulatory limits are in terms of individual dose, and this dose is sometimes converted to an estimate of the individual's risk (probability) of a latent cancer fatality. However, the estimates of cancer risk from radiation exposure are most appropriately applied to populations, because it is from exposed populations that the basic dose-to-risk conversion factors are estimated.
Government Accountability Project, Nuclear Weapons Oversight Gilbert, Clare	L104/033	The MEPAS code was used to evaluate the impacts from exposure to chemicals. This code uses the standard EPA guidance and toxicity factors as suggested.
Government Accountability Project, Nuclear Weapons Oversight Gilbert, Clare	L104/034	The MEPAS code was used to evaluate the impacts from exposure to chemicals. This code uses the standard EPA guidance and toxicity factors as suggested.
Government Accountability Project, Nuclear Weapons Oversight Gilbert, Clare	L104/035	The draft HSW EIS uses best available data for estimating inventories of hazardous and radioactive wastes. These data are obtained from information management systems maintained at Hanford and other DOE sites. Most of the waste will be generated by environmental restoration activities, and there is uncertainty about the amounts that will be generated. To address this uncertainty, the draft HSW EIS uses high- and low-bounded waste volume and radionuclide estimates to evaluate impacts.
Government Accountability Project, Nuclear Weapons Oversight Gilbert, Clare	L104/040	The scope of the HSW EIS is to evaluate the potential environmental impacts of ongoing activities of the Hanford Solid Waste Program, to evaluate implementation of alternatives consistent with the WM PEIS, and to evaluate reasonably

Table 3.1. (contd)

Source	Comment	Response
		foreseeable treatment, storage, and disposal facilities and activities. DOE is working with the State of Washington Department of Ecology and the Region X US EPA to establish more specific terms and conditions for implementation of the waste management actions proposed in the HSW EIS.
Government Accountability Project, Nuclear Weapons Oversight Gilbert, Clare	L104/041	The HSW EIS summarizes activities and projected completion dates under the TPA M-91 Milestone in Table 6.1. The HSW EIS also addresses the impacts of processing and certification of TRU waste for disposal at the Waste Isolation Pilot Plant. Management of suspect TRU waste and other past-buried wastes will be addressed under the Hanford CERCLA program.
Government Accountability Project, Nuclear Weapons Oversight Gilbert, Clare	L104/045	The DOE endeavors to make its EIS documents easily readable to a wide audience with diverse interests, training, and professional backgrounds. The HSW EIS also must use descriptive nomenclature long associated with the Hanford site and nomenclature used for DOE implementation of NEPA and other regulatory programs. Some of the technical and regulatory nomenclature is complicated and may lose its meaning when used in the context of public review, and it may need to be paraphrased or somehow simplified so that is does not unnecessarily burden or distract many EIS readers. The EIS is intended to scientifically and consistently estimate environmental impacts of proposed actions so that they can be compared, and so an informed decision can be made in selecting an alternative. The analyses in an EIS are not intended to be used in making scientific predictions.
Government Accountability Project, Nuclear Weapons Oversight Gilbert, Clare	L104/046	Please see the response to comment L104-44.
Government Accountability Project, Nuclear Weapons Oversight Gilbert, Clare	L104/047	The curie is an appropriate unit for communicating the radiological inventory remaining at Hanford and the environmental impacts of radiological contamination. It also facilitates comparison with certain regulatory standards, such as EPA Maximum Contaminant Level standards (MCLs) established under the Safe Drinking Water Act. The comment correctly recognizes that there is far more complexity in ways that radioactivity can be measured. The science of radiological health physics is a crucial component of the HSW EIS, and more highly detailed radiological metrics have been used in its health impact analysis (Appendix F).
Hanford Information Network Unidentified	L084/004	DOE plans to vitrify the contents of the underground waste storage tanks at Hanford. The vitrification process will be conducted in accordance with Federal and Washington State regulatory requirements. Alternatives for disposition of tank waste were examined in the "Tank Waste Remediation System

Table 3.1. (contd)

Source	Comment	Response
		Environmental Impact Statement" which is discussed in Section 1.5.3 of the DEIS.
Hanford Information Network Unidentified	L084/011	Several alternative treatment facilities are considered for each primary waste streams in the revised draft HSW EIS. These include the use of existing onsite facilities or offsite contracts, construction of new treatment facilities, modification of existing onsite facilities, and/or the use of modular units. The final selection of treatment technologies will likely be addressed in future NEPA actions. The costs of the various alternatives will be presented in Section 3 of the revised draft HSW EIS.
Hauck Consultants Hauck, Jim	L002/002	This is not the experience at Hanford. Use of HIC, In-place trench grouting, and macro-encapsulation of wastes is routinely used for stabilization of Category 3 LLW and other wastes containing elevated inventories of technetium-99, iodine-129, and uranium isotopes.
Heart of America Northwest Lee, Hyun	E013/000	Document L097 is the letter version of the e-mail attachment of comments. See document L097 for the responses.
Heart of America Northwest Lee, Hyun S.	L097/008	Operational details of managing the trenches, such as leaving them uncapped while they are being filled, were not used as a basis for evaluating the alternatives in the draft HSW EIS. LLW sent to the trenches must meet stringent waste acceptance criteria that prevents the release of radionuclide contaminants. MLLW sent to hazardous waste management trenches must meet waste acceptance criteria and RCRA land disposal restriction treatment standards. The MLLW trenches must also meet RCRA technology standards that include requirements for liners and leachate collection.
Heart of America Northwest Lee, Hyun S.	L097/012	Any offsite DOE waste sent to Hanford must satisfy the Hanford Waste Acceptance Criteria. A percentage of waste shipments and containers are selected for receipt verification. These containers can be inspected visually, verified by nondestructive examination, or sampled for field or laboratory analysis to confirm that the waste matches the Waste Profile Sheet. Any discrepancies between the verification results and the Waste Profile Sheet must be resolved before final acceptance on the Hanford Site. Further information on the Waste Acceptance Criteria is available at: http://www.hanford.gov/wastemgt/wac/acceptcriteria.cfm.
Heart of America Northwest Lee, Hyun S.	L097/034	Investigations of Hanford waste management units will be performed within the framework of the TPA, and under CERCLA, RCRA, or WHWMA authorities, as appropriate.
Heart of America Northwest Lee, Hyun S.	L097/042	DOE regulates disposal of DOE radioactive waste under authority granted by the Atomic Energy Act. DOE LLBGs are operated in accordance with DOE Order 435.1 and DOE Manual 435.1-1. Mixed waste trenches on the Hanford Site

Table 3.1. (contd)

Source	Comment	Response
		are operated in accordance with DOE Order 435.1, DOE Manual 435.1-1, and Department of Ecology regulations. DOE's basis for regulation of DOE LLBGs as compared to commercial LLBGs is set out beginning at p. A-152 of Appendix A of the "Implementation Guide for use with DOE M 435.1-1." Appendix A can be accessed at URL: <http://www.directives.doe.gov/>. Appendix A states that: "The regulation of low-level waste at DOE facilities, as developed in DOE Order 435.1, differs from the more generic but prescriptive approach taken by the Nuclear Regulatory Commission (NRC) in developing requirements for commercial facilities in 10 CFR Part 61 and other rules. 10 CFR Part 61 was developed with several known conditions that are specific to commercial waste and are not necessarily appropriate for DOE low-level waste. These differences include (1) NRC has a formal licensing process while DOE uses the Directives process; (2) NRC requirements are for generic but unknown facilities and locations; (3) commercial waste streams are well defined; (4) DOE processed spent fuel for spent nuclear material; (5) DOE disposes of low-level waste onsite, where practical, at facilities which have been operating for many years; (6) land use controls for DOE low-level waste disposal facilities are likely to extend into the distant future; and (7) the management structure for DOE complex-wide low-level waste management is well established. These factors lead to differences in waste management regulation and practices for DOE and NRC low-level waste disposal; however, the required level of health protection is essentially identical."
Heart of America Northwest Lee, Hyun S.	L097/045	Discussion of impacts of the alternatives and cumulative impacts has been revised. The hypothetical wells discussed in the HSW EIS are modeled points of maximum concentration over time along lines approximately 1 kilometer down gradient from the overall waste facilities in the 200 East Area, the 200 West Area, the ERDF, and along a line near the river. The wells are not intended to represent existing or planned locations of monitoring wells. Section 5.3 and Appendix G have been revised.
Heart of America Northwest Lee, Hyun S.	L097/062	The US Ecology facility is not operated by the DOE, and regulatory issues at the US Ecology facility cannot be addressed by DOE in the draft HSW EIS. A description of the US Ecology operation has been added in Section 1.3 of the revised draft HSW EIS.

Table 3.1. (contd)

Source	Comment	Response
Heart of America Northwest Lee, Hyun S.	L097/063	The US Ecology facility is not operated by DOE; however, its environmental impacts have been evaluated in the HSW EIS.
Heart of America Northwest Pollet, Gerald	RL003/004	The U.S. Department of Energy (DOE) is committed to cleanup of the Hanford Site through the Tri-Party Agreement (TPA) process. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel. Many more curies of waste will be sent offsite from Hanford than will be received from offsite. Analysis indicates that these wastes could be handled without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. DOE has added alternatives that include disposal of LLW in lined trenches with leachate collection systems (see Section 3.1).Groundwater impacts from Low-Level Waste Management Areas (WMAs) 1, 2, 3, and 4 are discussed in Sections 2.8 and 2.9 in Hanford Site Groundwater Monitoring for Fiscal Year 2001 (Hartman et al. 2002), which addresses the eight LLBGs in question. Based on results of fence line monitoring of the WMAs, the current interpretation is that there is no evidence that the specific WMAs in question have contributed to contaminants found in groundwater underlying these areas. See Section 5.3.3.1 of this HSW EIS.
Heart of America Northwest Pollet, Gerald	RL003/005	With some exceptions, estimated inventories of hazardous chemical constituents associated with LLW and MLLW disposed after 1988 being considered under each alternative were be expected to be found at trace levels. In particular, MLLW, which would be expected to contain the majority of hazardous chemical constituents, would undergo pre-disposal treatment to meet current Waste Acceptance Criteria and Land Disposal Restrictions before being disposed of in permitted MLLW facilities. Consequently, groundwater quality impacts

Table 3.1. (contd)

Source	Comment	Response
		from these constituents would not be considered significant. Analysis of MLLW inventories for this assessment did identify two exceptions that included lead and mercury inventories associated with the projected MLLW that were estimated at 336 kg (741 lb) and 2.5 kg (5.5 lb), respectively. Because of its affinity to be sorbed into Hanford Sediments, lead falls within the Kd Group 5 (Kd = 40 mL/g) and would not release to groundwater within the 10,000-year period of interest in this analysis. The inventory estimated for mercury is assumed to be small enough that it would not release to groundwater in substantial concentrations. Even the most conservative estimates of release would yield estimated groundwater concentrations at levels of two orders of magnitude below the current standard of 0.002 mg/L.
Heart of America Northwest Pollet, Gerald	RL003/017	TRU storage facilities are described in Section 2.2 of the DEIS. Ultimate disposition of DOE TRU waste will be at the WIPP facility in New Mexico.
Heart of America Northwest Pollet, Gerald	SEA010/017	Some of the LLBG trenches stopped receiving solid wastes many years ago, and they were filled and covered in accordance with management practices applicable at the time of their closure. Appendix D of the first draft HSW EIS provide graphics showing the operating status of LLBG trenches. Subsidence of the soil covering some of the older buried waste disposal trenches have been observed by DOE.
Heart of America Northwest Pollet, Gerald	SEA010/021	The shut-down date (date when active waste management operations will end) used in the first DEIS was the year 2046. This year was chosen to complement the impact analysis time periods in the WM PEIS. The actual shut-down year will depend on many factors related to completion of the DOE cleanup mission. The 2002 HPMP currently envisions a shut-down year of 2035. Characterization of releases from LLBG disposal units, if any, will be addressed under the framework of the TPA, CERCLA, and RCRA permitting authorities, if and when appropriate.
Heart of America Northwest Wheatley, Helen	SEA013/004	The case of United States of America v. Kentucky, 252 F.3d 816, (6th Circuit 2001) is a recent holding affirming that DOE has exclusive authority to regulate the radioactive component of DOE mixed waste and that EPA, or states authorized by EPA under RCRA, retain the authority to regulate the hazardous portion of the mixed waste.
Heart of America Northwest Wheatley, Helen	SEA013/010	The summary is meant to present an overview of what is in the actual EIS itself, which may consist of several volumes. As such, it is not meant to go into any depth on the details of the EIS, but to serve as a guide to the more detailed material.
Heart of America Northwest Wheatley, Helen	SEA013/022	The DEIS has been prepared with the best available information.

Table 3.1. (contd)

Source	Comment	Response
Northwest Environmental Defense Center Hippert, Dona	L091/009	Doses for intrusion scenarios at 10,000 years after disposal-site closure have been calculated and are included in the EIS.
Northwest Environmental Defense Center Hippert, Dona	L091/010	DOE's basis for regulation of DOE LLW is set out beginning at p. A-152 of Appendix A of the "Implementation Guide for use with DOE M 435.1-1." Appendix A can be accessed at URL: http://www.directives.doe.gov/. Appendix A states that: "These factors lead to differences in waste management regulation and practices for DOE and NRC low-level waste disposal; however, the required level of health protection is essentially identical."
Northwest Environmental Defense Center Hippert, Dona	L091/016	The Hanford Site Solid Waste Acceptance Criteria document and the draft LLBG Dangerous Waste Permit provide more detailed information about waste inspection and verification. These are incorporated into the draft HSW EIS by reference.
Northwest Environmental Defense Center Hippert, Dona	L091/017	The analysis does include closure evaluations. The closure cover analyzed (modified Resource Conservation and Recovery Act [RCRA] Subtitle C cover) is shown in Figure 2.15. The development of borrow pits for closure material is described in Appendix D. As identified in Section 3.7 the costs for alternative groups do include the costs for capping. Details of the costs can be found in Appendix C of the Technical Information Document (FH 2002). The environmental analysis of these actions is contained in Section 5.0.
Northwest Environmental Defense Center Hippert, Dona	L091/018	The draft HSW EIS includes discussion of uncertainty. Uncertainty is addressed by evaluating impacts resulting from management of Hanford only lower bound and upper bound waste quantities.
Northwest Environmental Defense Center Hippert, Dona	L091/019	The TPA is a living document that has been amended numerous times. Information on cleanup progress at Hanford can be accessed at: http://www.hanford.gov/doe/progress/progress.htm. This web site includes information on meeting TPA milestones. Further information on the TPA is available at URL: http://www.hanford.gov/tpa/tpahome.htm.
Northwest Environmental Defense Center Hippert, Dona	L091/020	The 200 Area non-tank farm investigations are scheduled to be completed by December 31, 2008 pursuant to Milestone M-15-00C of the TPA. Information from Hanford site characterization activities has been used in the HSW EIS.

Table 3.1. (contd)

Source	Comment	Response
Northwest Environmental Defense Center Hippert, Dona	L091/023	The relationship between the HSW EIS and the River Protection Project (tank waste remediation program) is presented in Sections 1.0. Additional NEPA documentation for Hanford wastes may be found at: http://www.hanford.gov/netlib/eis.asp.
Northwest Environmental Defense Center Hippert, Dona	L091/024	The projected waste quantities in the draft HSW EIS are based on average amounts of waste generated over a recent three-year period that included 1996, when 102.4 metric tons of surplus uranium were disposed in the LLBG. The resulting averages include a projected 34 metric tons per year of surplus uranium disposal in LLBG trenches.
Northwest Environmental Defense Center Hippert, Dona	L091/025	The final closure cap design has not yet been decided, the draft HSW EIS assumes use of a modified RCRA Subtitle C cap. Infiltration is to be shed by a layer of low-permeability asphalt and overlying lateral drainage layers of sand and gravel.
Northwest Environmental Defense Center Hippert, Dona	L091/027	Mobile treatment facilities are not precluded by the evaluations in the draft HSW EIS. Information about use of mobile treatment facilities has been added in the revised draft HSW EIS.
Northwest Environmental Defense Center Hippert, Dona	L091/028	The costs as shown in Table 3.6 are constant value life-cycle costs. No discounting of costs was used for future activities. The methodology used for all alternatives was consistent. Details of the cost estimates can be found in Appendix C of FH2002. Additional information has been added to Section 3.5 and Table 3.6 in the second DEIS.
Northwest Environmental Defense Center Hippert, Dona	L091/029	Information about management of spent reactor fuel and high-level waste has been added in Sections 1.3.4.3 and 1.3.4.4 of the revised draft HSW EIS.
Northwest Environmental Defense Center Hippert, Dona	L091/030	Underground pipelines are used to transfer process effluents in accordance with the TPA, dangerous waste management requirements, and state waste discharge permits. Hanford waste management activities comply with the RCRA 90-day hazardous waste storage limitation where its applicable.
Northwest Environmental Defense Center Hippert, Dona	L091/031	DOE routinely monitors external radiation levels and radionuclides in soil within the LLBGs. The data referred to in the HSW EIS were obtained from the near field monitoring program, and would have detected transuranic or other radionuclides long before they entered the vadose zone or groundwater.
Northwest Environmental Defense Center Hippert, Dona	L091/032	Background radiation was explained in Section 4.3.4 of the first draft HSW EIS. The total collective dose from naturally occurring radiation sources (300 mrem per year per individual) was used in Section 5.14 to assess radiological impacts from Hanford low-level waste management activities.

Table 3.1. (contd)

Source	Comment	Response
Northwest Environmental Defense Center Hippert, Dona	L091/033	Section 4.5.1.4 contains details on surface water quality. Additional information is in the Hanford Site Environmental Report 2001(Poston et al 2002) and the Hanford Site National Environmental Policy Act (NEPA) Characterization document (Neitzel 2002). This comment does not change the assessment documented in the HSW EIS, therefore, no changes were made in the HSW EIS.
Northwest Environmental Defense Center Hippert, Dona	L091/034	Native perennial shrubs and bunchgrasses generally dominate plant communities on the site. However, Euro-American settlement and development have resulted in the proliferation of nonnative species. Of the 590 species of vascular plants recorded on the Hanford Site, approximately 20 percent of the species are considered nonnative (Sackschewsky et al. 1992). Additional information can be found in Section 4.6 of the revised draft HSW EIS.
Northwest Environmental Defense Center Hippert, Dona	L091/036	There are no reports of amphibians or water-reliant wildlife at West Lake (Neitzel 2002). Applicable environmental impacts are discussed in Section 5.5 and Appendix I of the HSW EIS.
Northwest Environmental Defense Center Hippert, Dona	L091/039	Environmentally conservative modeling methods have been used in the draft HSW EIS to evaluate impacts. Appendix E presents the details of the air quality impact analysis.
Northwest Environmental Defense Center Hippert, Dona	L091/044	Long-term impacts on water quality were addressed in Section 5.3.3 of the first draft HSW EIS. Section 5.3.3 of the revised draft HSW EIS has been expanded to address long-term water quality impacts of the new and reconfigured alternatives.
Rachel's Friends/ Breast Cancer Coalition Grumpacker, Nancy	PDA013/004	Potential health impacts are considered for the next 10,000 years in this HSW EIS.
The Mountaineers Eades, Glenn	L092/010	Information on DOE's beryllium disease prevention program is available at: http://tis.eh.doe.gov/be/. Information on DOE's program to apply sanctions to DOE contractors for unsafe actions or conditions that violate nuclear safety requirements for protecting workers and the public is available at: http://tis.eh.doe.gov/enforce/index.html-ssi.
The Mountaineers Herbst, Rodger	SEA039/007	Sending LLW and MLW to Hanford is consistent with WM PEIS decisions and technical factors such as irreparable past contamination and low precipitation. Hanford is an appropriate location for disposal of LLW and MLW. Ecology's Model Toxic Control Act is concerned with cleaning up hazardous waste sites in the state.
Washington Physicians for Social Responsibility Takaro, Trombold, Fleck & Yarrow, Tim, Jim, Martin & Ruth	L102/018	The DEIS does not specifically evaluate cap designs and their performance. Cap performance was more simply represented by a ten-fold decrease in infiltration through waste disposal units with caps.

Table 3.2. Individual Comments and Responses

Source	Comment	Response
Albertson, Steve	ML002-14/002	The U.S. Department of Energy (DOE) is committed to cleanup of the Hanford Site through the Tri-Party Agreement (TPA) process. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel. Many more curies of waste will be sent offsite from Hanford than will be received from offsite. Analysis indicates that these wastes could be handled without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. DOE has added alternatives that include disposal of LLW in lined trenches with leachate collection systems (see Section 3.1). In 2001 alone, samples were collected from 735 groundwater monitoring wells to determine the distribution and movement of existing radiological and chemical constituents in Hanford Site groundwater and identify and characterize potential and emerging groundwater contamination problems. Samples were analyzed for about 40 different radionuclide constituents and about 290 different chemical constituents.
Ayotte, Dave	F074/001	Please see the responses to comments F074-2 through F074-4.
Bee, Robin	F025/003	The HSW EIS analyses do not take any credit for liners in estimating the impacts of solid waste on groundwater even when they are part of the alternatives. It appears that caps can provide protection for a longer period.

Table 3.2. (contd)

Source	Comment	Response
Beyer, Edward	PDA020/003	This is a repeat of the previous and not a comment.
Boese, Bill	PDA010/006	National Environmental Policy Act (NEPA) studies are required by law.
Buich, Nancy	P002/002	What has been observed in the vadose zone beneath tank farms were the results of leaks of large volumes of tanks wastes containing extreme geochemical conditions of pH and salt content. The enhanced migration of complexed cobalt-60 originated from a discharge sites in the B-BX-BY WMA that received large amounts of liquid wastes. LLBGs have not received tank wastes nor have they received large volumes of liquid wastes and there is no evidence that similar geochemical conditions persists beneath LLBGs.
Call, Beth	MP003-029/003	In addition to the Hanford Waste Treatment Plant program, DOE must proceed with other environmental and waste management activities that are reliant on Hanford waste treatment and disposal facilities.
Carnahan, Bob	HR009/002	The draft HSW EIS provides general descriptions of radioactive waste treatment and processing facilities in Section 2.0. While it must be recognized that most treatment technologies may have limitations, treated wastes must meet applicable regulatory standards and waste acceptance criteria prior to disposal at Hanford.
Cimon, Norm	F015/003	The socioeconomic impacts of each alternative (focusing on Hanford cleanup) are analyzed in Section 5.6. Even under the No Action Alternative of the first draft HSW EIS, cleanup activities at Hanford continue and contaminated sites and groundwater are and well continue being cleaned up. These areas will be cleaned up to "industrial use classifications" and radioactive/hazardous areas will be protected from intrusion.
Cimon, Shelley	L011/004	NEPA review documentation provides a foundation for, and a supplement to, environmental documentation developed specifically for other regulatory programs. The draft HSW EIS, as a NEPA review document, is not intended to function as, or contain the same information as, a compliance agreement, a permit, or a management plan under other Hanford regulatory programs. The scope of the draft HSW EIS does not include evaluation of potential impacts resulting from pre-1970 LLBG transuranic wastes. These will be addressed through CERCLA response activities and other NEPA documentation, as appropriate.
Civiletti, Jane	F029/008	Comment noted.
Civiletti, Jane	F029/009	Treatment may be required if a TRU waste exhibits hazardous waste characteristics. Generally, RCRA hazardous waste regulations require that wastes meet RCRA treatment standards prior to land disposal. Treatment to eliminate the radioactive characteristics of TRU is not possible with current technologies.

Table 3.2. (contd)

Source	Comment	Response
Davis, Robert	PDA021/001	Risk analysis is used throughout the draft HSW EIS. See particularly Appendices F, G, H and I in Volume II, first draft HSW EIS, and the sections the appendices support in Volume I.
Devoy, Tiffany	F077/001	Comment noted.
Devoy, Tiffany	F077/004	We apologize for the confusion of signing in to give public comments. In trying to support and accommodate a wide variety of public interest groups who also wanted to have tables set up to provide information, things got crowded and at times confusing. We do not always have control over how other groups present their sign in logs, unfortunately this resulted in numerous lists for people at a wide variety of tables. Written comments are the best way to voice an opinion and to receive a response. In the spirit of NEPA and public information, public meetings begin with a short presentation by a DOE official on the EIS process, the overall waste management program at the Hanford Site, and an overview of DOE proposed actions and the draft HSW EIS scope. State and Federal regulatory agencies and local public interest groups also made introductory presentations. A question-and-answer session was held prior to the official comment period. Commenters, representing themselves or various organizations, were heard on a first-come, first-served basis based on a sign-up sheet at the registration table. All were encouraged to provide written versions of their oral comments for the record. Oral comments were recorded by a court reporter and are part of the official draft HSW EIS public meeting record. Printed information was available, and opportunities were provided before each meeting for informal discussion about the DOE proposed action and the scope and content of the draft HSW EIS. Forms for those who wished to submit written comments instead of or in addition to oral statements, also were provided. Not all commenters were able to speak because of time limitations at the facility in Portland and so another forum was held. Everyone who signed up to speak was given an opportunity.
Engstrom, Karin	E014/002	The shipment was TRU waste being shipped to the Waste Isolation Pilot Plant (WIPP) in southern New Mexico for permanent disposal. Pursuant to the WM PEIS, the WIPP SEIS, and related DOE records of decision, TRU wastes may be stored or processed at Hanford prior to final disposal at WIPP.

Table 3.2. (contd)

Source	Comment	Response
Follingstad, Joyce	PDB012/002	Risk assessment is an applied process employable in considering and evaluating alternatives. By necessity it uses models, formulas and quantitative data. Public questioning and input to risk assessment studies are an invaluable means to ensuring that the risk assessment process considers all of the viable alternatives.
Follingstad, Joyce	PDB012/010	The truckloads the commenter is referring to have not yet started. However, the Hanford Site has received thousands of shipments of radioactive waste from offsite generators over the years.
Garner, Marilyn	L068/004	Section 6 contains an extensive discussion of applicable regulatory requirements and permits. A discussion of the impacts of transporting waste to and from Hanford through the states of Oregon and Washington has been added to this HSW EIS (see Sections 2.2.4, 5.8, and Appendix H). A discussion of the storage of offsite TRU waste at Hanford pending its disposal at WIPP is also included in this HSW EIS (see Section 5 and its associated appendixes).
Grim, Paul	F006/004	The U.S. Department of Energy (DOE) is committed to cleanup of the Hanford Site through the Tri-Party Agreement (TPA) process. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel. Many more curies of waste will be sent offsite from Hanford than will be received from offsite. Analysis indicates that these wastes could be handled without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. DOE has added alternatives that include disposal of LLW in lined trenches with leachate collection systems (see Section 3.1). The HSW EIS analyses do not take any credit for liners in estimating the impacts of solid waste on groundwater even when they are part of the alternatives. It appears that caps can provide protection for a longer period.

Table 3.2. (contd)

Source	Comment	Response
Hedlund, Bob	PDB016/004	Comment noted.
Hertz, Karen	ME001-08/002	The Hanford clean-up effort is expected to be completed in 2035.
Hines, Maxine	F018/001	Comment noted.
Hines, Maxine	F018/002	There was an announcement placed in the La Grande local paper two days prior to the public meeting. DOE recognizes that in this particular case the announcement should have occurred earlier. However, the meeting was announced earlier in both the Portland and Pendleton papers. For the revised draft HSW EIS, a similar procedure will be followed. Information will be sent to anyone who requested information, attended a public meeting, or submitted comments on the first draft.
Hines, Maxine	F018/004	Please see the response to comment F018-3.
Jasseys, Ruth	L029/001	Continued storage at Hanford is considered safer than other alternatives. Dispersal of the radioactive waste currently stored at Hanford to other offsite locations would be expensive and would likely expose the public and occupational workers to additional risks beyond those posed by storage at Hanford.
Jasseys, Ruth	L029/004	The Nevada Test Site is one of the locations that DOE plans to use for management and disposal of nuclear wastes.
Jones, Rhoda	L058/003	The Nevada Test Site is one of the locations that DOE plans to use for management and disposal of nuclear wastes.
Juergens, Kathleen	L077/006	DOE's funding from year-to-year has remained fairly constant. There are a number of cleanup activities ongoing at Hanford or being contemplated. Many of these cleanup activities require an EIS and hence the need for public input. Public input often shapes the design and implementation of cleanup at Hanford. In addition, DOE is continually trying to make the most effective use of its cleanup dollars by developing (with input and guidance from its regulatory partners and public interest groups and individuals) new cleanup methods and approaches.
Knight, Paige	PDA018/002	DOE considers public input a valuable and critical step in the NEPA process. DOE solicited input from regulators, tribal nations and members of the public over a three-month comment period on the first draft HSW EIS. Both oral and written comments were received at public meetings. Written comments were also accepted by conventional and electronic mail. Comments were provided on several common topics including: coordination with other environmental impact statements and DOE activities; alternatives and activities to analyze; waste types and volumes to analyze; public health, environmental consequences; transportation risk, and public involvement and government agency consultation. DOE has responded to each comment in the following sections of this document.

Table 3.2. (contd)

Source	Comment	Response
Knight, Paige	PDA018/003	Shipments of radioactive waste to Hanford have been suspended pending the outcome of litigation by the State of Washington against DOE.
Letterman, M. K.	MP003-103/003	The Yucca Mountain site, if and when it becomes operational, will be the nation's repository for high-level radioactive wastes. Transuranic wastes that are not high-level wastes, and which meet stringent waste acceptance criteria, are destined for the Waste Isolation Pilot Plant in New Mexico. Hanford, Nevada Test Site, and certain other major DOE sites will be used for management and disposal of LLW and MLLW.
Logan, Leslie	PDA031/001	Thank you for your comments. The purpose of these public meetings were to discuss the processes that the DOE outlined in the HSW EIS. In that context, no decisions had been made. The DOE strives to maintain an open channel of communication with all interested parties, including the public. These public meetings are only part our extensive outreach program. Your participation and the participation of everyone that attended the public meeting is what makes the outreach program successful.
Martin, Betty L.	L007/003	The DOE does not use facilities in the State of Oregon for nuclear waste disposal. Under provisions of the Low-Level Radioactive Waste Policy Act, low level waste generated in the State of Oregon is sent to the US Ecology facility in Washington.
Maser, Marlene	L036/002	Thank you for your comment. In reviewing and revising the HSW EIS, a substantial amount of checking and re-checking was conducted.
Mass Letter	ML001/003	The U.S. Department of Energy (DOE) is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. Chapter 6 of this HSW EIS identifies potential statutory and regulatory requirements that may apply to the proposed action and alternatives, including Resource Conservation and Recovery Act (RCRA) and State Dangerous Waste Regulations under the Hazardous Waste Management Act (see Section 6.3 of the HSW EIS). Section 6.19 addresses permits required to construct and operate treatment, storage, and disposal facilities related to the alternatives.
Mass Postcard	MP003/000	Each MP003 postcard received has unique comments. See the individual MP003 documents (MP003-001, MP003-002, etc.) for comments and responses.
Mays, Ed	SEA040/002	Thank you for your comments. Waste management activities evaluated in the HSW EIS are an integral part of the cleanup mission at Hanford and other DOE sites. Although some of the waste is referred to in the EIS as “newly generated,” the

Table 3.2. (contd)

Source	Comment	Response
		majority of waste forecast for management at Hanford consists of radioactive and hazardous material that currently exists at contaminated sites or facilities. When those sites are remediated or the facilities are decommissioned and demolished, contaminated materials from the cleanup become "newly generated" waste. Without facilities to treat and dispose of those materials in compliance with regulatory requirements, their impact on the environment and the risk to human health would ultimately be much greater.
McCracken, Mary	F021/002	Comments noted.
Miniszewski, Gary	L073/008	Thank you for your comment. Information on the geology and hydrology at the Hanford site is contained in Section 4.0 of the HSW EIS and references for that section.
Mitzner, Karen B.	F046/001	Hanford has experienced a number of environmental impacts as a result of its nuclear defense production mission that began in 1943. Clean-up of the resulting nuclear waste contamination has been difficult due to the radiological hazards and technological limitations for managing highly radioactive materials in the accessible environment. Hanford, like many Superfund sites, may never be restored to fully pristine environmental conditions.
Mitzner, Karen B.	F046/003	Hanford is considered to be in an area of relatively low seismic activity. It is also considered to be in an arid climate, based on its average annual precipitation of 6.8 inches per year.
Moore, Jennifer	SEA020/002	The U.S. Department of Energy (DOE) is committed to cleanup of the Hanford Site through the Tri-Party Agreement (TPA) process. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel. Many more curies of waste will be sent offsite from Hanford than will be received from offsite. Analysis indicates that these wastes could be handled without complicating future remediations, or diverting

Table 3.2. (contd)

Source	Comment	Response
		resources or disposal capacity from other Hanford cleanup activities. DOE has added alternatives that include disposal of LLW in lined trenches with leachate collection systems (see Section 3.1). During the trench sampling, industrial hygienists conducted repeated air monitoring at the top of the PVC pipe above the trench—a required health and safety practice for all sampling activities to protect the workers from potentially being exposed during the sampling. After the carbon tetrachloride had been detected in the air at the bottom of the trench, industrial hygienists again monitored the trench to ensure that other workers who entered this area in the burial ground would not be exposed. The measurements for all "organics" in the air above the trench (including carbon tetrachloride and its decay products) showed readings ranging from "not detectable" to 4 ppm—well below the standard set by the Occupational Safety and Health Administration (OSHA) of 10 ppm per day during a 40-hour work week. Samples taken in the "breathing zone" did not show any level of organics. The monitoring at the surface of the trenches indicated that toxic vapors were not emanating from the vent risers.
Muller, Charles H.	MP001-51/002	Comment noted.
Nussbaum, Rudy	PDB007/003	The Fred Hutchinson Study did not find a definitive link between releases of Iodine 131 and thyroid cancer and other diseases in Eastern Oregon and Washington.
Parsons, Judy	F050/003	DOE contracts with trucking companies with specialized expertise in radioactive shipping to conduct offsite shipments of radioactive waste. DOE and the trucking companies are required to comply with Federal Acquisition Regulations (FARs) and DOE Acquisition Regulations (DEARs) in Title 48 of the Code of Federal Regulations that include, among other things, specific requirements and prohibitions about relationships between the Federal Government and potential contractors.
Ray, Mary Ann	LG005/003	Hanford's Single-Shell Tank System has been estimated to have leaked on the order of one million gallons. The HSW EIS presents the environmental and technical information concerning analyses for LLW, MLLW, and TRU waste stream management for the Hanford Site. Additional NEPA documentation for Hanford may be found at: http://www.hanford.gov/netlib/eis.asp.
Ruecker, William M.	F053/002	In some cases waste is and would continue to be encapsulated onsite (e.g., Category 3 LLW, and ILAW).
Sajovic, Sasha	SEA021/004	DOE concurs that the shipment of drums with potentially explosive methane was a problem. DOE had the incident thoroughly investigated by an independent party. In their investigative accident report, recommendations were made to

Table 3.2. (contd)

Source	Comment	Response
		DOE and its contractors on steps to implement to prevent a re-occurrence of a similar type incident. DOE has implemented the recommendations at all sites within the complex.
Sajovic, Sasha	SEA021/005	Radioactive waste shipments are carefully planned and executed in accordance with federal regulations. Among the regulations are requirements for shipping papers (i.e., manifests), labels, and placards. Additional information about these requirements can be found in Chapter 6 of the HSW EIS, Title 49 of the Code of federal Regulations, and DOE Order 460.2.
Sajovic, Sasha	SEA021/007	See Section 2.0 of the EIS where waste acceptance and inspection are described.
Schaefer, Susie	E003/001	The HSW EIS has been revised and reissued for public comment. Biological and ecological resources (vegetation, wildlife, aquatic ecology, and threatened and endangered species) potentially impacted by the proposed actions are assessed in Appendix I and summarized in Section 4.6 of this HSW EIS. Wildlife species evaluated and ecological resource impacts are summarized in Section 5.5 of this EIS. The natural vegetation is expected to be reestablished after closure of the disposal facilities and the borrow area. Potential mitigation measures for addressing ecological impacts are described in the Biological Resources Management Plan (BRMaP) and the Biological Resources Mitigation Strategy (BRMiS), which are discussed in Section 5.18 of this HSW EIS. The details of the groundwater impacts are presented in Section 5.3 and Appendix G. Cumulative impacts are discussed in see Sections 5.14 and Appendix L.
Schaefer, Susie	E003/003	The purpose of an EIS is to analyze and disclose the impacts of a proposed action and its reasonable alternatives thereby providing environmental input into the final decision regarding the action.
Schroeder, Ken	SEA046/002	The U.S. Department of Energy (DOE) is committed to cleanup of the Hanford Site through the Tri-Party Agreement (TPA) process. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites

Table 3.2. (contd)

Source	Comment	Response
		would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel. Many more curies of waste will be sent offsite from Hanford than will be received from offsite. Analysis indicates that these wastes could be handled without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. DOE has added alternatives that include disposal of LLW in lined trenches with leachate collection systems (see Section 3.1). Mitigation of groundwater impacts is discussed in Section 5.18.
Sharkey, Doug	HR003/003	The DOE has successfully treated and stabilized radioactive wastes with different formulations of concrete. Concrete treatments are used only for wastes that do not have levels of radiation high enough to cause the concrete formulation to deteriorate.
Shubert, Valerie	L080/001	The official comment period extended beyond the time requirements outlined in NEPA. There will be however, another public comment period for the revised draft HSW EIS that will give you an additional opportunity to respond. DOE will be seeking input from regulatory agencies, Tribal Nations, and members of the public on the revised draft HSW EIS being issued in response to comments received in writing and at public meetings. To ensure interested parties are able to respond to the revised document, DOE plans to conduct additional public meetings and provide an additional 45-day comment period. Notification letters will be sent to all individuals who either requested information, those who attended meetings, and/or provided comments.
Shubert, Valerie	L080/004	The HSW EIS uses conventions and terms that derive from solid waste management regulatory programs. Generally, waste management activities are delineated into waste generation, transportation, storage, treatment, and disposal.
Shubert, Valerie	L080/005	This is correct. The alternatives consist of many of the same activities.
Shubert, Valerie	L080/014	In the original development of DOE radioactive waste categories, Category 2 LLW was defined. However, this category resulted in only a small volume of waste. The previous Category 2 waste is now managed as Cat 3 LLW.
Shubert, Valerie	L080/019	The HSW EIS uses nomenclature that derive from solid waste management regulatory programs. The disposal definition derives from the federal RCRA statute and regulations.
Shubert, Valerie	L080/026	The definition provided comes from Section 11e.(2) of the Atomic Energy Act. Essentially all radioactive waste that is not high-level waste, TRU, or NORM is low-level waste. NORM,

Table 3.2. (contd)

Source	Comment	Response
		like many naturally occurring geologic materials, is generally too ubiquitous to effectively regulate.
Shubert, Valerie	L080/029	Decontamination activities associated with the Hanford defense production mission continue to decline.
Shubert, Valerie	L080/031	The term "treatment" in the HSW EIS derives from the regulatory definitions of treatment under federal and state hazardous waste management regulations. LLW that does not exhibit hazardous waste characteristics does not require treatment to meet RCRA land disposal restriction standards prior to disposal.
Shubert, Valerie	L080/032	The text in the draft HSW EIS has to balance brevity in the interest of readability against elaboration of many possible related details. Low-level radioactive wastes may be safely buried in shallow land disposal facilities, and high-level radioactive wastes require disposal in a deep geologic repository. Additional text and clarification has been provided in Section 1.7.3.3 of the revised draft HSW EIS.
Shubert, Valerie	L080/033	The term "reasonable" as it pertains to alternatives appears in NEPA regulations (40 CFR 1502 et al) and in NEPA guidance. The reasonable alternatives were developed in consideration of the P&N for agency action (Section 1 of HSW EIS). For description of alternatives, see Section 3.
Shubert, Valerie	L080/035	Hanford Site Solid Waste Acceptance Criteria (HSSWAC) cover a number of waste streams, each with its own acceptance criteria. Nonconforming wastes are those that do not meet applicable acceptance criteria. The HSSWAC (FH 2001) document is mentioned throughout the HSW EIS and is specifically identified as a reference.
Shubert, Valerie	L080/043	The cleanup of active DOE waste sites and facilities is regulated by DOE authority under the Atomic Energy Act, and is subject to the applicable provisions of the federal Resource Conservation and Recovery Act and the State of Washington Hazardous Waste Management Act. More specific provisions for cleanup of active Hanford waste sites and facilities are presented in the Tri-Party Agreement and in portions of the Hanford Dangerous Waste Management permit.
Shubert, Valerie	L080/044	The HSW EIS includes general descriptions of CERCLA and other authorities that can be used to respond to the release, or the threat of a release, of hazardous substances. Any site, facility, or vehicle used in the transportation or other management of a hazardous substance may experience the threat of such a release.
Shubert, Valerie	L080/045	Hanford's cribs were structurally reinforced pits used for past discharges of liquid effluents to the soil column, (also referred to as the vadose zone in the HSW EIS). French drains were in-ground pipes and pits that were similarly used to drain and

Table 3.2. (contd)

Source	Comment	Response
		discharge effluents from Hanford facilities. Discharges to ponds, cribs, French drains, and ditches ended in the early 1990s. Current effluent discharges are managed with more modern effluent treatment technologies. These waste sites no longer contain water and have undergone investigations, interim stabilization, and remediation as appropriate to prevent exposure and to prevent additional migration of contaminants into the soil column. Access to contaminated locations at Hanford is highly restricted.
Shubert, Valerie	L080/046	Inactive burial grounds are being managed as part of Hanford's CERCLA response activities. The general pattern of response for CERCLA sites includes assessment of available information, site characterization activities if necessary, followed by CERCLA process evaluations to determine whether additional response actions are needed.
Shubert, Valerie	L080/047	The ERDF is an important component of Hanford's restoration activities being performed under CERCLA authority. CERCLA wastes and ERDF operations are outside the scope of the draft HSW EIS, so it was only briefly discussed in Sections 1.5, 3.5, 4.2, and 5.14 of the first draft HSW EIS. The HSW EIS analyses have since been expanded to include a number of alternatives and activities that have been under discussion since the first draft HSW EIS was issued in April 2002. The revised draft HSW EIS includes additional alternatives for disposal of LLW, MLLW, ILAW and WTP melters in either independent or combined use facilities that comply with RCRA and state standards for disposal of hazardous wastes. A number of locations for the disposal facilities are considered, including the ERDF. Many of the alternative disposal facility configurations would include double liners, leachate collection systems, and RCRA compliant covers installed at or before closure.
Shubert, Valerie	L080/051	The defueled reactor compartments are shipped by barge up the Columbia River, and then taken by a special transport vehicle to the Hanford LLBG. They are still being shipped to Hanford.
Shubert, Valerie	L080/053	This document has been withdrawn from certain US government Internet sites due to terrorism and national security concerns. It is still available for review at the Hanford DOE Reading Room ((509) 372-7443). It is also available at http://www.globalsecurity.org/wmd/library/report/enviro/ea-0981.htm
Shubert, Valerie	L080/054	The stabilization is achieved by the removal of water from the solid fuel cores prior to packaging.

Table 3.2. (contd)

Source	Comment	Response
Shubert, Valerie	L080/056	Retrievable storage would mean that the waste could be readily retrieved at some time in the future. The plans for management of the low activity waste fraction have changed in the last year, and the immobilized low activity waste (ILAW) it is now included as one of the waste streams evaluated in the revised draft HSW EIS. The possible disposal locations for ILAW differ according to each of the alternatives evaluated in the revised draft HSW EIS.
Shubert, Valerie	L080/057	DOE NEPA decisions and actions regarding the cesium and strontium capsules are not within the scope of the Hanford Solid Waste EIS. At this time, there is no planned time frame for DOE making a decision about the cesium and strontium capsules. The time frame for decisions will depend on what DOE decisions are made regarding the Yucca Mountain site.
Shubert, Valerie	L080/087	In response to comments on the EIS, DOE provided an analysis of the radiological and nonradiological impacts of transporting TRU wastes from Hanford to WIPP. The analysis, presented in Section H.5.1 of the EIS, scaled the results presented in the WIPP SEIS-II to the TRU waste volumes projected in the Hanford Solid Waste EIS to be shipped from Hanford to WIPP. In addition, an analysis was conducted to determine the impacts in the States of Washington and Oregon of transporting wastes from offsite generators to Hanford and transporting TRU wastes to WIPP. This analysis is presented in Section H.5.2 of this EIS. Some of the references used in preparing the first draft HSW EIS have been withdrawn from the Internet because of national security concerns. Supporting documentation is available at the Hanford Reading Room in Richland, WA. Key references may also be available on compact disk (CD) or may be requested from the NEPA Document Manager. The Reference to the WIPP supplemental analysis is provided in the reference Section 2.3 and is available in the public document rooms. Since Transportation is a key part of the document and information related to Hanford is contained in numerous sections, a reference to a specific section is not appropriate. Both publc document rooms and many public library provide internet assess to those interested. Those with web access prefer web addresses to obtain information more quickly than having to go to the public document rooms.
Shubert, Valerie	L080/092	Additional information on waste volumes in contained in Section 3.4 Table 3.4. The table indicates that the waste volume is about 95 cubic meters of a total of 45,806. If the waste can not be send to WIPP without treatment, it will be treated, but new facilities will need to be established at significant expense to the taxpayers.

Table 3.2. (contd)

Source	Comment	Response
Shubert, Valerie	L080/132	The T Plant Complex meets all TPA requirements where the commitment or completion date has occurred. The M-91 requirements for the T Plant Complex are set out in Table 6.1 of the DEIS.
Shubert, Valerie	L080/157	Verification is discussed in sections 2.1.1 and 2.2.2.1.
Shubert, Valerie	L080/173	See page 2-20 where it was described.
Shubert, Valerie	L080/209	The non-conforming LLW stream is described in Section 2.1.1.4.
Shubert, Valerie	L080/211	Wastes from Hanford CERCLA activities are sent to ERDF. Other LLW and MLLW sources are described in Section 2.1 and Appendix C.
Shubert, Valerie	L080/221	The LLBG was initially designated by the Atomic Energy Commission as an area to be used for disposal of Hanford's radioactive wastes. Additional designations were made by DOE beginning in 1985 to address requirements under the Resource Conservation and Recovery Act statute.
Shubert, Valerie	L080/223	Appendix E of the draft HSW EIS provides the details of the air quality impact analysis. The estimates include diesel engines, propane-fired equipment, and fugitive dust sources. The details of the on-site traffic and transportation impacts are provided in Appendix H of the draft HSW EIS. The transportation impact analysis is based on estimates of accidents and fatalities rather than air emissions. DOE considers accidents and fatalities to be more meaningful metrics for estimating transportation impacts than vehicular air emissions.
Shubert, Valerie	L080/224	Table 3.5 of the first draft HSW EIS provided a high-level summary of some of the more significant impact estimates. Te-99 and I-129 were two groundwater contaminants of concern that were estimated to exceed regulatory benchmark maximum contaminant levels as a possible result of the proposed actions. Table 3.5 has been replaced with more extensive tabular impact summaries in the revised draft HSW EIS.
Shubert, Valerie	L080/225	The stated text in Table 3.5 was intended to represent the maximum estimated impacts on the Columbia River that might result from the proposed actions. The impacts are based on modeling of contaminant movement within disposal units and Hanford's hydrogeology. Variations in contaminant concentrations over time, with associated maximum and average concentrations, can be expected in source terms, in groundwater well locations, and in groundwater entering the Columbia River. Table 3.5 has been replaced with more extensive tabular impact summaries in the revised draft HSW EIS.

Table 3.2. (contd)

Source	Comment	Response
Shubert, Valerie	L080/227	Radioactive waste disposal areas at Hanford and other DOE sites will remain under restricted access government control indefinitely.
Shubert, Valerie	L080/228	Only major non-renewable resources were considered as important discriminators among the alternatives. Disposal of HSW would not contaminate water so it would not be useable. Bentonite clay and land have been added as non-renewable commitments.
Shubert, Valerie	L080/231	The DOE defines "design basis" as the set of requirements that bound the design of systems, structures, and components within its facilities. Design requirements include consideration of safety, plant availability, efficiency, reliability, and maintainability. Some aspects of the design basis are important to safety, although others are not. Design basis accidents (DBAs) are used in DOE safety analyses to provide the design parameters for release barriers and mitigating systems. The major categories of DBAs are internally initiated operational accidents (e.g., fires, explosions, spills, criticality); natural phenomena events for the site (e.g., earthquakes, tornadoes) that could affect the facility; and externally initiated, man-made events such as airplane crashes, transportation accidents, adjacent facility events, etc., that can either cause releases at the facility under examination or have a major impact on facility operations. The DOE also evaluates “beyond” DBAs to provide additional perspective. The insight from beyond DBA analyses has the potential for identifying additional facility features that could prevent or reduce severe beyond DBA consequences. In evaluations of beyond DBAs, it is understood that as frequencies become very low, little or no meaningful insight is attained. Operational beyond DBAs are operational accidents with more severe conditions or equipment failures than are estimated for the corresponding DBA. Natural phenomena beyond DBAs are defined by the frequency of the natural phenomena event itself (i.e., frequency of occurrence less than DBA frequency of occurrence). Beyond DBAs are not evaluated for external events.
Shubert, Valerie	L080/232	The scenario is not credible as the waste is below the depth of excavation. The condition of the asphalt is not relevant in this scenario.
Shubert, Valerie	L080/233	The evaluations in the draft HSW EIS are based on internationally accepted standard methods for radiological and chemical exposure health impact analysis. Evaluations based on estimates of potential long-term mutational effects were not used in the draft HSW EIS.

Table 3.2. (contd)

Source	Comment	Response
Shubert, Valerie	L080/234	As indicated in Table 3.5 footnote (b), it is reasonable to expect that native shrub-steppe habitat will eventually re-establish itself on the LLBG closure caps. The risks to biota or humans resulting from this expected outcome were not used as a basis for evaluation in the draft HSW EIS.
Shubert, Valerie	L080/235	The fiscal cost provides one perspective along with the environmental impacts for making decisions, which we need to do as part of this EIS.
Shubert, Valerie	L080/239	Water contours are shown on Figures 4.16 and 4.17. This comment does not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/240	Details regarding population demographics in this area are documented in the Hanford Site National Environmental Policy Act (NEPA) Characterization document (Neitzel 2002). These details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/242	All documents referenced in the HSW EIS are publicly available at the DOE Reading Room in Richland, Washington.
Shubert, Valerie	L080/245	Details regarding unique habitats and the presence of cultural resources in this area are documented in the Hanford Site Environmental Report 2001 (Poston et al 2002) and the Hanford Site National Environmental Policy Act (NEPA) Characterization document (Neitzel 2002). These details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/249	The intent of the transfer of DOE ownership to Port of Benton ownership was to support future economic development. Additional details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/250	Construction was halted due to issues regarding need for power. For additional details, contact Energy Northwest. Additional details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/251	For additional details on other industrial options, contact Energy Northwest. These details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/253	Volpentest is a personal name. This comment does not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/255	Results of research conducted on the Fitzner-Eberhardt Arid Lands Ecology Reserve Unit are publicly available at the DOE Reading Room in Richland, Washington.
Shubert, Valerie	L080/257	For additional information, contact the FWS.
Shubert, Valerie	L080/262	Water is discharged into the ground from a pipe. These details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/264	Bentonite is an absorptive and colloidal clay. These details do not change the assessment documented in the HSW EIS.

Table 3.2. (contd)

Source	Comment	Response
Shubert, Valerie	L080/266	The text was modified for clarification. Effluents that are added to the pond must meet all benchmark maximum contaminant levels.
Shubert, Valerie	L080/267	Barriers over the contamination sources are used to inhibit radionuclide transport to the surface environment through deep rooted plants, such as Russian thistle, or burrowing insects and animals. There are components in the RCRA modified Subtitle C Cap, illustrated in Section 2.2.3.2, to exclude burrowing insects/mammals and deep rooted plants from coming in contact with the waste. Details regarding surface contamination are documented in the Hanford Site Environmental Report 2001(Poston et al 2001). These details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/268	The number and size or contaminated areas vary from year to year for several reasons: stabilization of areas of known contamination, discovery of new areas of contamination, and/or ongoing improvement of the geographical measurements of contaminated areas. Details regarding surface contamination are documented in the Hanford Site Environmental Report 2001(Poston et al 2001). These details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/269	The contaminated soil and/or vegetation is removed. All contaminated areas may be susceptible to contamination migration and are surveyed at least annually to document the current radiological status. Details regarding surface contamination are documented in the Hanford Site Environmental Report 2001(Poston et al. 2002). These details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/270	Tumbleweed and rabbitbrush are deep-rooted species and can become radiologically contaminated by the uptake of below ground contaminants through their root systems. Herbicide application is intended to halt vegetation growth before the uptake occurs. In addition, areas of surface contamination are posted, monitored, and surveyed at least annually to document their radiological status. Details regarding biological control programs are documented in the Hanford Site Environmental Report 2001(Poston et al 2002). These details do not change the assessment documented in the HSW EIS.

Table 3.2. (contd)

Source	Comment	Response
Shubert, Valerie	L080/271	Barriers over the contamination sources are used to inhibit radionuclide transport to the surface environment through deep rooted plants, such as Russian thistle, or burrowing insects and animals. There are components in the RCRA modified Subtitle C Cap, illustrated in Section 2.2.3.2, to exclude burrowing insects/mammals and deep rooted plants from coming in contact with the waste. Details regarding surface contamination are documented in the Hanford Site Environmental Report 2001(Poston et al 2001). These details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/276	Additional details regarding weather are found in Hanford Site Climatological Data Summary 2000 With Historical Data (Hoitink et al 2001) and the Hanford Site National Environmental Policy Act (NEPA) Characterization document (Neitzel 2002). These details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/277	Details regarding the climate and meteorology of this area are documented in the Hanford Site Climatological Data Summary 2000 With Historical Data (Hoitink et al 2001) and the Hanford Site National Environmental Policy Act (NEPA) Characterization document (Neitzel 2002). These details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/279	Additional details regarding air monitoring are found in the Hanford Site National Environmental Policy Act (NEPA) Characterization document (Neitzel 2002). These details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/280	Additional details regarding weather are found in Hanford Site Climatological Data Summary 2000 With Historical Data (Hoitink et al 2001) and the Hanford Site National Environmental Policy Act (NEPA) Characterization document (Neitzel 2002). These details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/285	The joint frequency distributions were measured at two different heights (9.1 m and 60 m [30 ft and 197 ft]. The text has been modified for clarification.
Shubert, Valerie	L080/287	The U.S. EPA has issued regulations (40 CFR 50) setting national ambient air quality standards. In addition, the State has established standards for total suspended particulates, radionuclides, and fluorides. The Hanford Site is in compliance with all national and State ambient air quality standards. Additional details regarding air quality in this area are documented in the Hanford Site National Environmental Policy Act (NEPA) Characterization document (Neitzel 2002). These details do not change the assessment documented in the HSW EIS.

Table 3.2. (contd)

Source	Comment	Response
Shubert, Valerie	L080/289	Standards for emissions of radionuclides from DOE facilities have been established by EPA (40 CFR Part 61) and Washington State (WAC-173-480 and WAC 246-247). Emissions may not exceed quantities that would result in a dose of 10 mrem in a year to a maximally exposed member of the public. Additional details regarding air quality in this area are documented in the Hanford Site National Environmental Policy Act (NEPA) Characterization document (Neitzel 2002). These details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/290	The U.S. EPA has issued regulations (40 CFR 50) setting national ambient air quality standards. The State has also established standards for total suspended particulates, radionuclides, and fluorides. In addition, Washington state has established more stringent standards for sulfur dioxide. The Hanford Site is in compliance with all national and State ambient air quality standards. Additional details regarding air quality in this area are documented in the Hanford Site National Environmental Policy Act (NEPA) Characterization document (Neitzel 2002). These details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/292	Footnotes are in standard U.S. DOE format. This comment does not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/293	For further information on the standards, see WAC-173-480-040. These details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/294	Additional information on the source of contaminants is found in the Hanford Site Environmental Report 2001 (Poston et al 2002). These additional details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/295	The 100, 400, and 600 areas have no non-radioactive emission sources of regulatory concern. Details regarding non-radioactive emission sources of regulatory concern are documented in the Hanford Site Environmental Report 2001(Poston et al 2001). These details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/300	Releases are a composite of calculated estimates of toxic air pollutants, excluding ammonia. Additional information on the source of contaminants is found in the Hanford Site Environmental Report 2001 (Poston et al 2002). These additional details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/302	The Cold Vacuum Drying facility is where fuel from the K Basins is prepared for storage. These details do not change the assessment documented in the HSW EIS.

Table 3.2. (contd)

Source	Comment	Response
Shubert, Valerie	L080/303	The potential air pathway dose from stack emissions to a maximally exposed individual was calculated to be 0.22 mrem per year. Emissions may not exceed quantities that would result in a dose of 10 mrem in a year to a maximally exposed member of the public. These details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/305	The first occurrences of "NM and ND" are marked with a footnote citation. Including separate footnotes for each of them does not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/308	Cumulative doses include background radiation. These details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/331	Nonhuman uses are described in detail in Section 4.6. This comment does not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/353	Results are published in the Hanford Site Environmental Report 2001 (Poston et al 2002). All documents referenced in the HSW EIS are publicly available at the DOE Reading Room in Richland, Washington.
Shubert, Valerie	L080/356	Prospective technetium-99 and iodine-129 groundwater impacts are discussed in a number of locations in the draft HSW EIS and its appendices, and the discussions of results and impacts do not lend themselves to cross-reference annotation as requested. Table 3.5 has been replaced with a more extensive set of impact summary tables in the revised draft HSW EIS.
Shubert, Valerie	L080/368	Carbon tetrachloride is disposed of using RCRA approved procedures. These details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/387	NAVD88 is the North American Vertical Datum of 1988. This comment does not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/396	An estimated 150 square mile plume of contaminated groundwater exists underneath the Hanford site. This plume of contamination resulted from the release of an estimated 450 billion gallons of liquid radionuclide and hazardous waste since 1944, 346 billion gallons of which were released in the 200-East and 200-West areas.
Shubert, Valerie	L080/405	The table has been revised to include the footnotes on both pages. However, this comment does not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/423	'Biological and Ecological Resources' is standard NEPA terminology. This comment does not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/432	Figure 4.20 and its legend are intentionally arranged to first show the vegetation distribution to the reader and then provide its explanatory legend. The arrangement in revised draft HSW EIS is the same.

Table 3.2. (contd)

Source	Comment	Response
Shubert, Valerie	L080/466	The surveys were conducted for presence/absence with no assessment of viability of populations. These details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/475	Comment noted.
Shubert, Valerie	L080/484	Non-farm wage refers to income generated from non-farm business. Proprietor income refers to income from individual owned businesses. These details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/501	The table was revised. However, this comment does not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/503	The table was revised. However, this comment does not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/504	The population in Benton and Franklin counties are quite similar to those found within Washington. The population in Benton and Franklin counties under the age of 35 is 53.1 percent, compared to 49.4 percent for Washington State. In general, the population of Benton and Franklin counties is somewhat younger than that of Washington. The 0- to 14-yr old age group accounts for 25.6 percent of the total bi-county population as compared to 21.3 percent for Washington. In 2000, the 65-yr old and older age group constituted 9.8 percent of the population of Benton and Franklin counties, compared to 11.2 percent for Washington. These details do not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/516	Currently, there is a park-and-ride system available. This comment does not change the assessment documented in the HSW EIS.
Shubert, Valerie	L080/518	The exact location of the barricade does not change the assessment documented in the HSW EIS.
Sims, Lynn	F057/002	The DEIS uses risk as one means to evaluate impacts of Hanford solid waste management activities. Risks associated with facilities and storage activities were described in Section 5.11. On-site transportation impacts were evaluated in Appendix H and Section 5.8 of the first DEIS.
Stennard, Richard and Elaine	F083/004	The Yucca Mountain site, if and when it becomes operational, will be the nation's repository for high-level radioactive wastes. Transuranic wastes that are not high-level wastes, and which meet stringent waste acceptance criteria, are destined for the Waste Isolation Pilot Plant in New Mexico. Hanford, Nevada Test Site, and certain other major DOE sites will be used for management and disposal of LLW and MLLW.

Table 3.2. (contd)

Source	Comment	Response
Streib, Darol	MP003-102/001	The Yucca Mountain site, if and when it becomes operational, will be the nation's repository for high-level radioactive wastes. Transuranic wastes that are not high-level wastes, and which meet stringent waste acceptance criteria, are destined for the Waste Isolation Pilot Plant in New Mexico. Hanford, Nevada Test Site, and certain other major DOE sites will be used for management and disposal of LLW and MLLW.
Taney, Madeleine F.	MP003-092/001	What has been observed in the vadose zone beneath the Hanford tank farms were the results of leaks of large volumes of tanks wastes containing extreme geochemical conditions of pH and salt content. The enhanced migration of complexed cobalt-60 originated from a discharge sites in the B-BX-BY WMA that received large amounts of liquid wastes. LLBGs have not received tank wastes nor have they received large volumes of liquid wastes and there is no evidence that similar geochemical conditions persists beneath LLBGs.
Teal, Joseph	L015/002	The strategies for dealing with TRU wastes, complex-wide and at Hanford, have been presented for public review in other NEPA documents, notably the 1997 WM PEIS (see WM PEIS Volume I, Chapter 8), the Waste Isolation Pilot Plant Supplemental EIS (DOE/EIS-0026-S-2) and in related DOE records of decision (see Appendix A of the CRD for a summary of DOE RODs). Related NEPA documents are summarized in Section 1.5 of the revised draft HSW EIS. According to the Section 3.2 of the 1987 Disposal of Hanford Defense High-Level, Transuranic, and Tank Wastes EIS, there are 24 TRU-contaminated soil sites with an estimated TRU inventory of 20,000 Ci (0.02 Mci). These sites include the cribs, trenches, ponds, ditches, French drains, settling tanks, and one unplanned release. The estimate volume of these contaminated soil sites is 32,000 cubic meters, and the estimated weight is 58,000 metric tons. Pre-1970 buried suspect TRU, essentially all contaminated solid waste disposed between 1944 and 1970, has an estimated TRU inventory of 33,000 Ci (0.033 Mci). The estimated volume of these contaminated sites (waste and soil) is 110,000 cubic meters, and the estimated weight is 200,000 metric tons. The current estimated inventory of retrievable Hanford TRU is approximately 0.4 Mci, and the estimated inventory from off-site sources is expect to be 0.1 Mci. A total estimated TRU inventory of 0.5MCi is to be sent to WIPP.
Thompson, June	MP003-002/001	Due to the radioactive properties of the waste, and the prospect of long-term erosion from weather elements, DOE radioactive wastes are usually buried significantly below grade. DOE maintains a significant radiological and hazardous chemical monitoring network for groundwater, surface water, air, and biological resources.

Table 3.2. (contd)

Source	Comment	Response
Tipperman, Mark	LG007/004	DOE is cognizant of the concern of Native Americans and others regarding operations at Hanford. Extensive effort has been made to provide quantitative analysis of potential impacts. It is DOE policy to comply with the Endangered Species Act.
Unidentified	F066/001	Comments noted.
Unidentified	F068/002	Comments noted.
Unidentified	F069/001	Thank you for your comments. The standard time for comments at a public meeting is three minutes. Written comments are the best way to voice an opinion and to receive a response. At the HSW-EIS public meetings commenters, representing themselves or various organizations, were heard on a first-come, first-served basis based on a sign-up sheet at the registration table. All were encouraged to provide written versions of their oral comments for the record. Oral comments were recorded by a court reporter and are part of the official draft HSW EIS public meeting record. Printed information was available, and opportunities were provided before each meeting for informal discussion about the DOE proposed action and the scope and content of the draft HSW EIS. Forms for those who wished to submit written comments instead of or in addition to oral statements, also were provided. Not all commenters were able to speak because of time limitations at the facility in Portland and so another forum was held.
Unidentified	F070/001	Comments noted.
Unidentified	F072/002	Comments noted.
Unidentified Speaker	LG019/002	DOE will be seeking input from regulatory agencies, Tribal Nations, and members of the public on the revised draft HSW EIS being issued in response to comments received in writing and at public meetings. To ensure interested parties are able to respond to the revised document, DOE plans to conduct additional public meetings and provide an additional 45-day comment period. Notification letters will be sent to all individuals who either requested information, those who attended meetings, and/or provided comments.
Unidentified Speaker	PDA017/003	Shipment of offsite waste to Hanford has occurred in the past and is continuing.

Table 3.2. (contd)

Source	Comment	Response
Unidentified Speaker	PDA017/004	Approximately 20,818 m^3 of low level waste (lower bound estimate) is considered offsite waste coming to Hanford (lower bound estimate) and 198,845 m3 (upper bound estimate). Mixed Low Level Waste is 100 m3 (lower bound) and 140,334 m3 (upper bound). For TRU waste there would be 57 m^3. See Appendix C of the first draft HSW EIS for additional details. These volumes may change in the revised draft HSW EIS. It should also be pointed out that these are volumes used to "bound" the alternative evaluations and does not mean that these wastes volumes will actually be the amount imported to Hanford.
Unidentified Speaker	PDA017/007	Approximately 20,818 m^3 of low level waste (lower bound estimate) is considered offsite waste coming to Hanford (lower bound estimate) and 198,845 m^3 (upper bound estimate). Mixed Low Level Waste is 100 m^3 (lower bound) and 140,334 m3 (upper bound). For TRU waste there would be 57 m3. See Appendix C of the first draft HSW EIS for additional details. These volumes may change in the revised draft HSW EIS. It should also be pointed out that these are volumes used to "bound" the alternative evaluations and does not mean that these wastes volumes will actually be the amount imported to Hanford.
Unidentified Speaker	PDA017/010	The Record of Decision (ROD) is published in the Federal Register and is a matter of public record. The exact text of the ROD is available on the DOE website (http://www.em.doe.gov/em30/llwrod.html)
Unidentified Speaker	PDA017/011	DOE reaches its conclusions after full public involvement and disclosure. These decisions, often in the form of Records of Decision or RODs, are then published in the Federal Register.
Unidentified Speaker	SEA001/001	Radioactive wastes are managed based on their regulatory status and based on their radionuclear and hazardous characteristics. For example, high-level radioactive waste has regulatory status as DOE high-level radioactive mixed waste under the Atomic Energy Act, and it also has regulatory status as hazardous waste under the Resource Conservation and Recovery Act. The required treatment for HLW is vitrification. Waste characteristics and treatment requirements are determined based on the source of the material, characterization data, or process knowledge.
Unidentified Speaker	SEA001/003	Germany sends spent fuel from its 19 nuclear power plants abroad for reprocessing under contracts that oblige it to take back the waste for storage.
Unidentified Speaker	SEA001/009	Thank you for your comments and questions. Regarding the public comment period and when a comment is no longer accepted, as long as the comment is postmarked the last day of the comment period it is still accepted for review and response.

Table 3.2. (contd)

Source	Comment	Response
Unidentified Speaker	SEA001/010	Earthquakes and seismicity were discussed in Section 4.4.4 of the first DEIS. Though there are active fault lines throughout the State and the northwest region in general, Hanford is in an area considered to be of low seismic activity. DOE's extensive programs for safety and safeguarding of nuclear materials consider a variety of possible worst-case scenarios. Safety analysis reports and other safety documentation were used to assess impacts resulting from reasonably foreseeable catastrophic events. Volcanic activity from Mt. Rainier is not expected to impact Hanford or its waste management activities.
Unidentified Speaker	SEA001/011	For in-trench grouting the process involves placing the waste on a cement pad or on spacers, installing reinforcement steel and forms around the waste and covering the waste with fresh concrete. Steel fibers are incorporated into the concrete to increase its strength. DOE has a number of structural engineers at Hanford that it calls upon in the design and building of the grouting systems. Most of these engineers have advanced degrees and years of experience on the job.
Unidentified Speaker	SEA001/012	Thank you for your comments. The HSW EIS has not been finalized and the ROD has not been published yet. The purpose of these public meetings were to discuss the processes that the DOE outlined in the HSW EIS. In that context, no decisions had been made. Opportunity for Public comment will be provided on this revised drat HSW EIS.
Unidentified Speaker	SEA001/014	Thank you for your comments. The DOE acts as an agency that represents the policy of the current administration. The DOE is tasked with following the NEPA process for all of its Environmental Impact Statements. DOE considers all comments it receives in preparing an EIS, including this EIS.
Unidentified Speaker	SEA001/015	EPA rates all draft environmental impacts statements issued by federal agencies. Further information on the rating process is available at: http://www.epa.gov/compliance/nepa/comments/ratings.html.
Unidentified Speaker	SEA001/026	DOE was given the authority to manage LLW by Congress and may not have the legal authority to delegate this responsibility to another agency. Specifically, LLW is waste that contains radioactive material and that does not fall under any other DOE classification of radioactive waste. DOE manages LLW and other radioactive waste under the authority of the Atomic Energy Act (AEA) of 1954 (42 USC 2011 et seq.). Categories of LLW and other requirements for disposal of LLW at Hanford are described in the Hanford Site Solid Waste Acceptance Criteria (HSSWAC).

Table 3.2. (contd)

Source	Comment	Response
Unidentified Speaker	SEA001/034	Presence alone of threatened or endangered species or critical habitat does not necessitate formal consultation under the Endangered Species Act. The U.S Fish and Wildlife Service (FWS) letter of April 23, 2002, (see Appendix I) states that "...if a listed species is likely to be affected by the project, the involved Federal agency should request Section 7 consultation.…" According to the FWS Endangered Species Consultation Handbook, formal consultation is necessary 1) after the action agency determines that the proposed action may affect listed species or critical habitat, or 2) National Marine Fisheries Service (NMFS) or FWS does not concur with the action agency's finding that the proposed action is not likely to adversely affect the listed species or critical habitat. There are no threatened or endangered species or critical habitat in any of the terrestrial habitats to be disturbed under any of the alternatives in this HSW EIS (see Appendix I). Thus, because no threatened or endangered species or critical habitat are likely to be adversely affected, there is no basis for initiating formal consultation with either NMFS or FWS. Regarding documentation for State-listed species of concern we assume the comment meant the Washington State Department of Fish and Wildlife not the U.S. Fish and Wildlife Service. Table 4.12 in this EIS identifies the Washington State-listed animal species of concern. This information was obtained from the website: www.wa.gov/wdfw/. Based on information provided subsequently from the Washington State Department of Fish and Wildlife (US FWS February 2002), this EIS has been updated.
Unidentified Speaker	SEA002/002	Thank you for your comments. The DOE strives to maintain an open channel of communication with all interested parties, including the public. These public meetings are only part our extensive outreach program. Your participation and the participation of everyone that attended the public meeting is what makes the outreach program successful.
Walworth, Frieda S.	MP001-53/001	During waste retrieval, drums that are not intact will be overpacked in new drums.
Walworth, Frieda S.	MP003-130/002	The U.S. Department of Energy (DOE) is committed to cleanup of the Hanford Site through the Tri-Party Agreement (TPA) process. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. DOE is responsible for the cleanup of dozens of sites around the country.

Table 3.2. (contd)

Source	Comment	Response
		DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel. Many more curies of waste will be sent offsite from Hanford than will be received from offsite. Analysis indicates that these wastes could be handled without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. DOE has added alternatives that include disposal of LLW in lined trenches with leachate collection systems (see Section 3.1). During waste retrieval, drums that are not intact will be overpacked in new drums.
Winn, Norman L.	L057/001	DOE plans to vitrify the contents of the underground waste storage tanks at Hanford. The vitrification process will be conducted in accordance with Federal and Washington State regulatory requirements. Although some plutonium is in the waste tanks at Hanford, most of the radioactive waste is strontium and cesium.
Winn, Norman L.	L057/008	EPA did a special study of organics and radionuclides (EPA 910-R-02-006) for a limited number of fish samples on the Hanford Reach. Fish were collected from the Hanford Reach of the Columbia River, artificial ponds on the Hanford Site, and from the upper Snake River and analyzed for radionuclides. The levels of radionuclides in fish tissue from Hanford Reach of the Columbia River and the ponds on the Hanford Site were similar to levels in fish from the Snake River. Cancer risks were estimated for consumption of fish that were contaminated with radionuclides. These estimates of risks were not combined with the potential risks from other chemicals, such as PCBs (Aroclors and dioxin-like PCBs), chlorinated dioxins and furans, and a limited number of pesticides. The potential cancer risks from consuming fish collected from Hanford Reach and the artificial ponds on the Hanford Site were similar to cancer risks in fish collected from the upper Snake River. These risks were small relative to the estimated risks associated with radiation from naturally occurring background sources, to which everyone is exposed. EPA reported that the Yakima River and the Hanford Reach of the Columbia River tended to have higher concentrations of organic chemicals than other study sites. EPA's study reported that the chemicals and or chemical classes that contributed the most to cancer risk for most of the resident fish were PCBs (Aroclors and dioxin-like PCBs), chlorinated dioxins and furans, and a limited number of pesticides. For most of the anadromous fish, the chemicals that contributed the

Table 3.2. (contd)

Source	Comment	Response
		most to cancer risk were PCBs (Aroclors and dioxin-like PCBs), chlorinated dioxins and furans, and arsenic. Agricultural runoff and non-Hanford-related industrial activities are believed to be major contributors of these organic chemicals.
Woodhouse, Woody	RL002/008	DOE evaluates the performance of each disposal facility in detail to ensure the facility meets the DOE Performance Assessment requirements. If groundwater contamination in excess of DOE limits were predicted by the Performance Assessment process, changes in the waste acceptance criteria would be made to limit disposal of the waste causing the groundwater contamination. The waste would require further treatment prior to disposal or would be stored until a method was found to treat or dispose of the waste.
Zotter, Michael	MP003-024/003	The U.S. Department of Energy (DOE) is committed to cleanup of the Hanford Site through the Tri-Party Agreement (TPA) process. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel. Many more curies of waste will be sent offsite from Hanford than will be received from offsite. Analysis indicates that these wastes could be handled without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. DOE has added alternatives that include disposal of LLW in lined trenches with leachate collection systems (see Section 3.1). A discussion of the impacts of transporting waste to and from Hanford through the states of Oregon and Washington has been added to this HSW EIS. A discussion of the storage of offsite TRU waste at Hanford pending its disposal at WIPP is also included in this HSW EIS (see Section 5 and its associated appendixes). In response to comments, DOE included a discussion of the potential impacts of deliberate acts of sabotage or terrorist attacks in Section 5.8 and Appendix H of this EIS.